SMELT WORKING GROUP
Monday, April 12, 2010

Recommendation for the week of April 12, 2010:

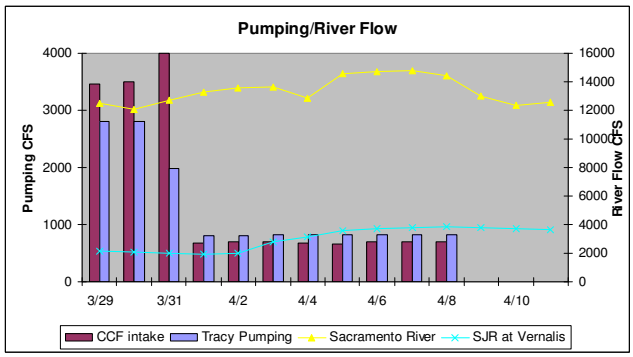
The SWG recommended continuation of OMR flows no more negative than -5,000 cfs. The Working Group agreed that the level of risk to larval delta smelt was low, given that no salvage of larvae has occurred so far this year and the latest survey data suggest that the greatest densities of delta smelt are in the Sacramento River and downstream of the confluence, and, therefore, outside the influence of the pumps. The Working Group will continue to monitor salvage, survey data, and hydrological conditions but will not reconvene until May 10, unless warranted or requested.

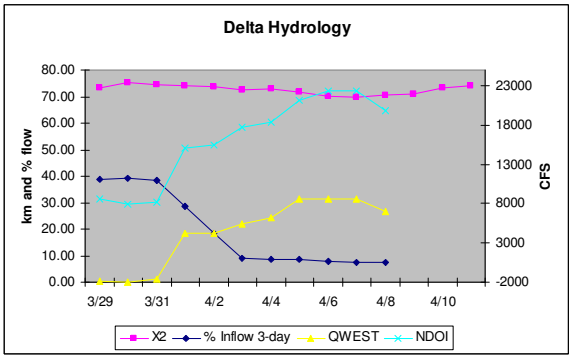
1) Current environmental data.

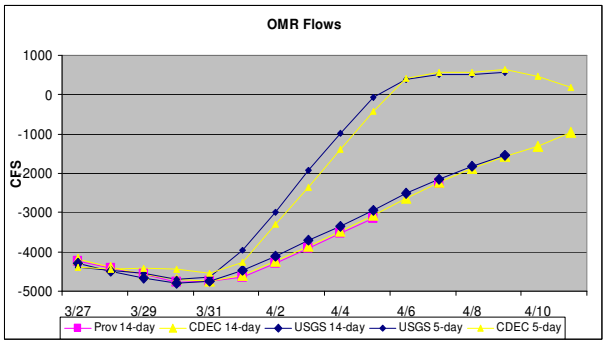
- **Water temperature** for the 3-station average is 15°C.

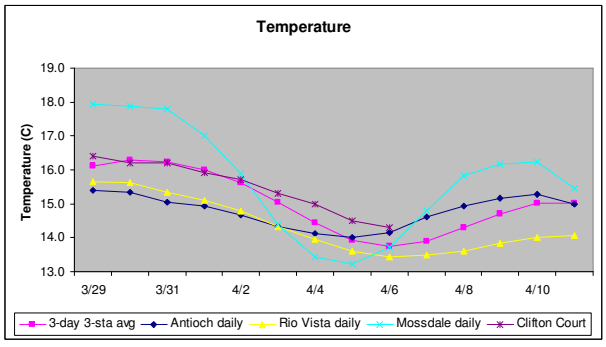
- **OMR** USGS 14-day and 5-day tidally-averaged OMR as of April 9 is, respectively, -1,539 cfs and 580 cfs. The 14-day and 5-day OMR average estimate from CDEC as of April 11 is, respectively, -967 cfs and 195 cfs. The 14-day and 5-day provisional estimate of OMR flow as of April 7 is, respectively, -2247 cfs and 475 cfs.

- **Flow** Sacramento River inflow is 12,552 cfs and San Joaquin 3,650 cfs. X_2 is 73.94km. As of April 8, E/I ratio is 7.4%, QWEST is 6968 cfs and NDOI is 19904 cfs. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.









2) Delta fish monitoring:

Spring Kodiak Trawl #4 was in the field April 5 through 8. Preliminary results indicate the adult distribution of delta smelt continues to remain in the lower Sacramento River and the Cache Slough Complex. Data will be released later this week. 20mm Survey 2 was in the field March 29 through April 1. All tows from 40 of 47 stations have been processed (all stations except those from the Napa River and eastern San Pablo Bay/Carquinez Strait). Three delta smelt larvae have been collected from stations 726 and 707 on the lower Sacramento River and the SDWSC. The larvae ranged in size from 5 to 6mm in length. One adult was collected in the SDWSC (at station 719) from the 20 mm collections. The highest densities of longfin smelt larvae were downstream of the confluence area with smaller densities in the Sacramento River, Cache Slough complex, and the north Delta. Results from larval surveys, SKT, and 20mm Surveys are available online at: http://www.delta.dfg.ca.gov/delta.

3) Salvage

As of March 31, adult salvage had reached the concern level of 92. The total authorized take for adults under the Biological Opinion was 123, cumulative, for the season.

Larval sampling is ongoing at the CVP and SWP facilities. No longfin or delta smelt larvae have thus far been salvaged this season as of April 8. Total authorized take for larval/juvenile (≥ 20 mm) delta smelt in April is 7 fish (expanded), with a Concern Level of 5 fish (expanded).

4) Expected Project Operations

The Projects are presently managing to meet the NMFS RPA action IV.2.1. Vernalis flow will be 3,000 cfs from April 1 through 24 and May 25 through 31. Vernalis flow will be 3,200 cfs from April 25 through May 24 to meet the VAMP flow schedule. Combined exports will be at 1500 cfs for the entire 60 day period.

5) Particle Tracking Modeling

No PTM run was requested for this week.

6) Discussion for Recommendation

The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations.

The juvenile protective phase of the biological opinion (RPA Component 2; Action 3 in Attachment B) is in effect. This action will continue until June 30 or when the 3-day mean water temperature at Clifton Court Forebay reaches 25^0C, whichever occurs earlier.

Component 2, Action 3 of the biological opinion, which is intended to protect larvae and juvenile delta smelt, includes a range of OMR flow from -1,250 cfs to -5,000 cfs. The BO provides

guidance for the assessment of the risk of entrainment of larvae and juveniles and for determining the appropriately-protective OMR flows within that range for any given week. The BO (pp 353-354) specifies that if entrainment risk is low, OMR flows could be expected to remain as negative as -5,000 cfs, but if entrainment risk is higher, OMR flows would be set so as to reduce that risk. The risk factors are (1) evidence (i.e., from survey data) that delta smelt are present in the South or Central Delta, and (2) evidence of ongoing entrainment.

As required in NMFS biological opinion, RPA action IV.2.1, minimum Vernalis flows from April 1 through May 31 will be 3,000 cfs based on the New Melones Reservoir Index (page 642 of the June 2009, NMFS Biological Opinion). Vernalis flows will increase to 3,200 cfs for the VAMP period (April 22 through May 21) based on current projections. Combined pumping for the CVP and SWP will be 1500 cfs during the 60-day implementation of the RPA action. The action is designed to protect emigrating steelhead smolts from the San Joaquin River Basin during the 60-day period of implementation.

The Working Group noted that the lack of larval delta smelt salvage so far this year and the results from the 20mm survey #2, Smelt Larval Survey #6, and the Spring Kodiak Trawl #4 indicate that the risk of entrainment of larval and adult delta smelt is likely low. The Working Group also noted the significantly positive QWEST since April 1 and positive or nearly positive daily values of OMR since April 2 also would suggest a low risk of entrainment to larval delta smelt. The Working Group agreed that -5,000 cfs OMR flow would be adequately protective for larval delta smelt for the next week.

Next Meeting: Monday, May 10, 2010 at 10 am. The Working Group is asked to reserve the usual 10 am Monday morning time in the event that an interim call is warranted or requested.

WEEKLY ADVICE FOR THE DEPARTMENT OF FISH AND GAME FOR LONGFIN SMELT

Advice for week of April 12, 2010:
The Smelt Working Group provides no advice for longfin smelt and believes that export restrictions and San Joaquin flows protective of emigrating juvenile steelhead will provide protection for the few longfin smelt remaining within the Delta**.**

The Work Group will next convene on May 10.

Basis for advice:
The 2009 State Water Project 2081 for longfin smelt states that advice to the DFG Director shall be based on:

1. Adult Salvage – total adult (>=80mm) longfin smelt expanded salvage (SWP+CVP) for December through February > 5 times the Fall Midwater Trawl longfin smelt annual abundance index.

2. Adult abundance, distribution or other information indicates that OMR flow advice is warranted.

3. Larva distribution in the Smelt Larva Survey or the 20mm Survey finds longfin smelt larvae present at 8 of 12 Central and South Delta sampling stations in 1 survey (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919).

4. Larva catch per tow exceeds 15 longfin smelt larvae or juveniles at 4 or more of the 12 survey stations listed.

Current Information

No adult longfin smelt were salvaged in the past week and none have been salvaged since the December 1, 2009 criterion period for salvage began.

No adult longfin smelt were collected upstream of the confluence by Bay Study in March.

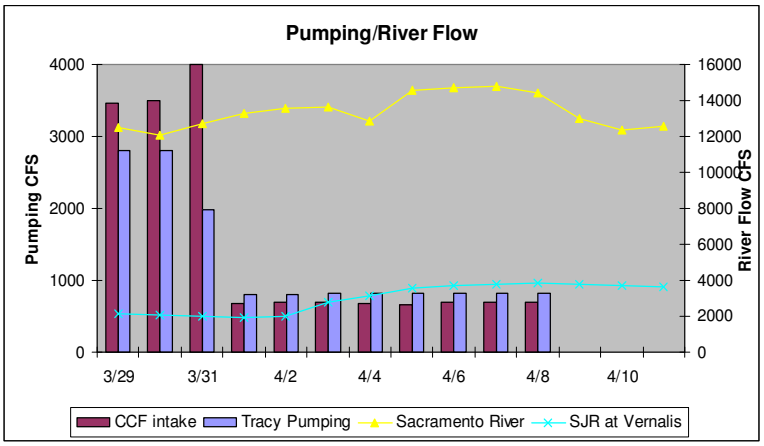
The March 22-24 Smelt Larva Survey (survey 6), found longfin smelt larvae at 8 of 12 south and central Delta criteria stations (Table 1). All survey 6 longfin smelt caught in the central and south Delta were recently hatched, indicating a continued low hatch rate in the Delta. Older longfin smelt larvae and juveniles were distributed downstream in Suisun Bay and Marsh. The 20mm Survey #2 (March 29, 30, April 1) indicated the longfin smelt distribution centered in Suisun Bay (http://www.dfg.ca.gov/delta/data/20mm/CPUE_Map3.asp). The second 20mm survey caught limited numbers of longfin smelt larvae in the central and south Delta, and more and larger larvae in the lower Sacramento River and confluence area (Table 2). Since April 1, SWP and CVP combined exports were reduced to about 1500 cfs, while Sacramento River flow fluctuated from above 12,000 to over 14,000 cfs and back, and San Joaquin River flow increased to above 3600 cfs on April 6 and has been maintained above 3600 since (Figure 1). Delta outflow and Qwest both showed a strong positive jump on April 1 and a steady increase to April 5 (Figure 1); both declined steadily from April 7 through April 11 (not show; NDOI = 13,971 and Qwest = 4,204).

As required in NMFS biological opinion, RPA action IV.2.1, minimum Vernalis flows from April 1 through May 31 will be 3000 cfs based on the New Melones Reservoir Index (page 642 of the June 2009, NMFS Biological Opinion). On April 5, Vernalis flows increased past the 3200 cfs level intended for the VAMP period (April 22 through May 21) and continued to 3,861 on April 8. Combined pumping for the CVP and SWP has been about 1500 cfs since April 1 and is planned to remain so during the 60-day implementation of the RPA action. The action is designed to protect emigrating steelhead smolts from the San Joaquin River Basin during the 60-day period of implementation.

Discussion

The distribution information above was used to develop OMR flow advice. Although a few longfin smelt larvae were detected in the central and south Delta, currently reduced exports, a strong positive Qwest and increased net Delta outflow suggest that these larvae are likely to be transported west. Most longfin smelt larvae and small juveniles were distributed from the confluence westward. Under current conditions the risk to entrainment for longfin smelt larvae is very low.

Figure 1. Sacramento and San Joaquin river flows (cfs) and Clifton Court intake and Tracy exports (cfs) (Top). Position of X2 (km), percent of inflow diverted, Qwest and net delta outflow (cfs) (Bottom).



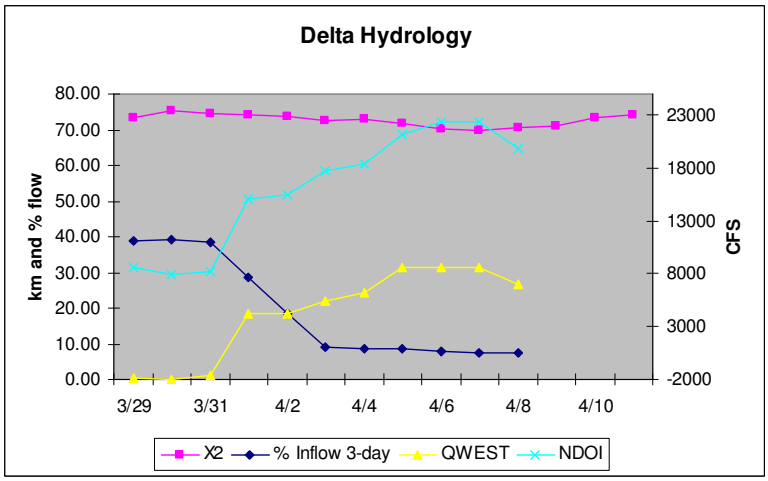


Table 1. Longfin smelt larva catch per station from Smelt Larva Survey sampling, survey 6 (March 22-25) processed through April 2, 2010. State Water Project ITP criteria stations are shaded.

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2010	6	405	Not yet processed		
2010	6	411	Processed	Longfin Smelt	1
2010	6	418	Processed	Longfin Smelt	1
2010	6	501	Not yet processed		
2010	6	504	Not yet processed		
2010	6	508	Processed	Longfin Smelt	675
2010	6	513	Not yet processed		
2010	6	519	Processed	Longfin Smelt	38
2010	6	520	Processed	Longfin Smelt	40
2010	6	602	Not yet processed		
2010	6	606	Processed	Longfin Smelt	49
2010	6	609	Processed	Longfin Smelt	28
2010	6	610	Processed	Longfin Smelt	14
2010	6	703	Processed	Longfin Smelt	19
2010	6	704	Processed	Longfin Smelt	45
2010	6	705	Processed	Longfin Smelt	4
2010	6	706	Processed	Longfin Smelt	69
2010	6	706	Processed	Delta Smelt	2
2010	6	707	Processed	Longfin Smelt	18
2010	6	711	Processed	Longfin Smelt	4
2010	6	716	Processed	Longfin Smelt	6
2010	6	716	Processed	Delta Smelt	4
2010	6	723	Processed	Longfin Smelt	14
2010	6	801	Processed	Longfin Smelt	30
2010	6	804	Processed	Longfin Smelt	59
2010	6	809	Processed	Longfin Smelt	9
2010	6	812	Processed	Longfin Smelt	3
2010	6	815	Processed	Longfin Smelt	4
2010	6	901	Processed	Longfin Smelt	6
2010	6	902	Processed	Longfin Smelt	1
2010	6	906	Processed	Longfin Smelt	1
2010	6	910	Processed		No Smelt Catch
2010	6	912	Processed		No Smelt Catch
2010	6	914	Processed		No Smelt Catch
2010	6	915	Processed	Longfin Smelt	2
2010	6	918	Processed		No Smelt Catch
2010	6	919	Processed	Longfin Smelt	1

SWP ITP Criteria Stations

Processing as of 4/2/10.

Table 2. Longfin smelt larvae catch per station from the 20mm Survey sampling, survey 2 processed through April 8, 2010.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min. Length	Max. Length	Avg. Length	
2010	2	323	30-Mar-10	0						Suisun Bay & West
2010	2	340	30-Mar-10	0						
2010	2	342	30-Mar-10	0						
2010	2	343	30-Mar-10	0						
2010	2	344	30-Mar-10	0						
2010	2	345	30-Mar-10	0						
2010	2	346	30-Mar-10	0						
2010	2	405	29-Mar-10	2	Longfin Smelt	3	7	17	12.6667	
2010	2	411	29-Mar-10	1	Longfin Smelt	23	13	23	17.4783	
2010	2	418	29-Mar-10	2	Longfin Smelt	7	9	84	26.5714	
2010	2	501	1-Apr-10	3	Longfin Smelt	66	8	26	13.8636	
2010	2	504	1-Apr-10	3	Longfin Smelt	8	9	24	18.25	
2010	2	519	1-Apr-10	2	Longfin Smelt	24	6	24	12.4583	
2010	2	602	29-Mar-10	1	Longfin Smelt	82	7	23	15.66	
2010	2	606	29-Mar-10	1	Longfin Smelt	44	8	24	15.1591	
2010	2	609	29-Mar-10	2	Longfin Smelt	57	11	26	16.68	
2010	2	610	29-Mar-10	1	Longfin Smelt	18	10	22	15.2778	
2010	2	508	01-Apr-10	3	Longfin Smelt	95	6	23	13.8421	Confluence
2010	2	513	01-Apr-10	3	Longfin Smelt	55	6	22	13.3818	
2010	2	520	01-Apr-10	3	Longfin Smelt	29	7	22	15.1379	
2010	2	801	01-Apr-10	3	Longfin Smelt	231	6	23	15.1571	
2010	2	804	01-Apr-10	3	Longfin Smelt	6	7	18	14.5	
2010	2	703	01-Apr-10	3	Longfin Smelt	20	6	21	14.9	Sac. River System
2010	2	704	01-Apr-10	3	Longfin Smelt	31	7	23	16.0968	
2010	2	705	30-Mar-10	3	Longfin Smelt	1	18	18	18	
2010	2	706	30-Mar-10	3	Longfin Smelt	1	8	8	8	
2010	2	707	30-Mar-10	3	Longfin Smelt	1	22	22	22	
2010	2	711	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	716	29-Mar-10	3	Longfin Smelt	1	7	7	7	
2010	2	718	29-Mar-10	3	Longfin Smelt	2	11	20	15.5	
2010	2	719	29-Mar-10	3	Longfin Smelt	1	21	21	21	
2010	2	720	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	723	29-Mar-10	3	Longfin Smelt	1	8	8	8	
2010	2	724	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	726	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	809	29-Mar-10	3	Longfin Smelt	4	7	20	10.25	Central & South Delta
2010	2	812	30-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	815	30-Mar-10	3	Longfin Smelt	2	6	7	6.5	
2010	2	901	29-Mar-10	3	Longfin Smelt	1	17	17	17	
2010	2	902	29-Mar-10	3	Longfin Smelt	1	7	7	7	
2010	2	906	30-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	910	29-Mar-10	2	No Longfin Smelt Catch	0				
2010	2	912	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	914	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	915	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	918	29-Mar-10	3	No Longfin Smelt Catch	0				
2010	2	919	30-Mar-10	3	No Longfin Smelt Catch	0				

Sample processing is current through 4/8/10.